APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,323	01/18/2002	Bruce H. Storm JR.	2000IP000092	7980

20558   7590   02/09/2004

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ART UNIT	PAPER NUMBER
2121	

DATE MAILED: 02/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary

Application No.	Applicant(s)
10/051323	Storm et al

Examiner	Group Art Unit
George Davis	2121

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE **Three** MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication .
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on __11/17/03__.
- ☒ This action is **FINAL.**
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) __1-16__ is/are pending in the application.
-   Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) __1-16__ is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on_____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on_____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
  - ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
  - ☐ received.
  - ☐ received in Application No. (Series Code/Serial Number)_____.
  - ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

  *Certified copies not received:_____.

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other_____

Office Action Summary

DETAILED ACTION

Claim Rejections - 35 U.S.C. § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-16 are rejected under 35 U.S.C. 102(b) as being anticipated by

Applicant's own admission.

Applicant admits training neural network with input parameters is well known in

the art (see specification, page 6, lines 20 and 21).

2.   (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-16 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by

Yang et al, "A Neural Network Approach to Predict Existing and in-Fill Oil Performance",

IEEE, IJCNN, July 2000.

As per claim 1, Yang discloses accumulating multiple data sets, each data set

including at least one parameter influencing an output of the well system, and at least

one parameter indicative of the well system output (pages 408, 409, 411 and 412),

training a neural network to model the output of the well system in response to the

influencing parameters (abstract, and pages 408, 409, 411 and 412) and inputting an output of the trained neural; network to a geologic model (page 412, "Conclusions and future work", last two lines).

As per claim 2, Yang discloses training the neural network utilizing the data sets, the trained neural network outputting the indicative parameters in response to input of the respective influencing parameters to the neural network (pages 408, 409, 411 and 412).

As per claim 3, Yang discloses in the accumulating step, the influencing parameters include valve positions (pages 408, 409, 411 and 412).

As per claim 4, Yang discloses in the accumulating step, the indicative parameters include production rates (pages 408, 409, 411 and 412).

As per claim 5, Yang discloses inputting an output of the trained neural network to a geologic model (pages 408, 409, 411 and 412).

As per claim 6, Yang discloses inputting an output of the geologic model to a financial model (pages 408, 409, 411 and 412).

As per claim 7, Yang discloses optimizing an output of the financial model in response to input of prospective influencing parameters to the neural network (pages 408, 409, 411 and 412).

As per claim 8, Yang discloses determining a respective value for each of the prospective influencing parameters whereby the output of the financial model in

response to input of the prospective influencing parameters to the neural network is

optimized (pages 408, 409, 411 and 412).

As per claim 9, Yang discloses training a neural network to model an output of the

well system in response to at least one variable parameter of the well system (pages

408, 409, 411 and 412) inputting an output of the neural network to at least one valuing

model (pages 408, 409, 411 and 412) and optimizing an output of the valuing model in

response to input of the well system parameter to the neural network (pages 408, 409,

411 and 412).

As per claim 10, Yang discloses inputting multiple data sets to the neural network,

each of the data sets including at least one known parameter influencing the well

system output (pages 408, 409, 411 and 412).

As per claim 11, Yang discloses in the training step, the known influencing

parameter is a position of a valve in the well system (pages 408, 409, 411 and 412).

As per claim 12, Yang discloses training the neural network to output at least one

known parameter indicative of the well system output in response to the input to the

neural network of the known influencing parameter (pages 408, 409, 411 and 412).

As per claim 13, Yang discloses in the training step, the known indicative

parameter is a production rate in the well system (pages 408, 409, 411 and 412).

As per claim 14, Yang discloses in the inputting step, the at least one valuing

model includes a geologic model and a financial model (pages 408, 409, 411 and 412).

As per claim 15, Yang discloses in the inputting step, the output of the neural

network is input to the geologic model, and an output of the geologic model is input to

the financial model (pages 408, 409, 411 and 412).

As per claim 16, Yang discloses in the optimizing step, the well system parameter

is varied to maximize the valuing model output (pages 408, 409, 411 and 412).

3.   Applicant's arguments filed November 17, 2003 have been fully considered but

they are not persuasive.

Applicant argues at page 6, last paragraph that "Yang does not describe inputting

well location and historical production data to train a neural network to predict future

production at a well site at a different location. However, Yang's abstract describe

inputting well location and historical production data to train a neural network to predict

future production at a well site at a different location.

Applicant further argues at page 6, last paragraph that "Yang does describe

inputting an output of the neural network to any geologic model. However, Yang, page

412, "Conclusions and future work", last two lines recite inputting an output of the

neural network to any geologic model.

4.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CAR 1.136(a).

\ short statutory period for reply to this final action is set to expire THREE MONTHS

from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed

until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CAR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

5.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to George Davis whose telephone number is (703) 305-

3891. The examiner can normally be reached on Monday through Thursday from 7:00

am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Anil Khatri, can be reached on (703) 305-0282. The fax phone number for

the organization where this application or proceeding is assigned is (703) 746-7240.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is (703)

305-3900.

February 8, 2004

GEORGE B. DAVIS

PRIMARY PATENT EXAMINER